What Is Claimed Is:

1   1.   A method for bypassing use of a protocol checksum during

2   communications across a reliable network link, comprising:

3   configuring a communication system to bypass use of the checksum during

4   communications across the reliable network link;

5   receiving an outbound packet to be transmitted to a destination across the

6   reliable network link; and

7   sending the outbound packet to the destination across the reliable network

8   link without computing the checksum for the outbound packet.

1   2.   The method of claim 1, wherein configuring the communication

2   system to bypass the checksum involves informing a protocol stack within the

3   communication system that network interface hardware for the communication

4   system is capable of computing the checksum, so that the protocol stack does not

5   compute the checksum.

1   3.   The method of claim 1, further comprising:

2   determining whether the outbound packet is directed to a valid destination

3   that is eligible for checksum bypassing;

4   if the outbound packet is not directed to a valid destination,

5   computing the checksum for the outbound packet, and

6   inserting the checksum into the outbound packet.

1   4.   The method of claim 3, wherein the checksum is computed by a

2   driver associated with network interface hardware for the communication system.

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1 5. The method of claim 1, further comprising:

2 receiving an inbound packet from a source across the reliable network

3 link; and

4 accepting the inbound packet without re-computing the checksum;

5 wherein re-computation of the checksum is required by the communication

6 protocol to verify that the inbound packet was received without errors.

1 6. The method of claim 5, wherein accepting the inbound packet

2 without re-computing the checksum involves:

3 communicating a default checksum value to a protocol stack within the

4 communication system;

5 wherein the default checksum value matches the default checksum value

6 contained within a checksum field of the inbound packet;

7 whereby the protocol stack will match the default checksum value with the

8 checksum field of the inbound packet and will consequently accept the inbound

9 packet.

1 7. The method of claim 6, wherein accepting the inbound packet

2 without re-computing the checksum additionally involves inserting the default

3 checksum value into the checksum field of the inbound packet.

1 8. The method of claim 1, wherein the communication protocol

2 includes one of:

3 Transmission Protocol (TCP);

4 Internet Protocol (IP); and

5 User Datagram Protocol (UDP).

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1   9.   The method of claim 1, wherein the reliable network link adheres

2 to the InifiBand standard.

1   10.   The method of claim 2,

2   wherein the checksum is a TCP checksum; and

3   wherein the protocol stack is an IP stack.

1   11.   A computer-readable storage medium storing instructions that

2 when executed by a computer cause the computer to perform a method for

3 bypassing use of a protocol checksum during communications across a reliable

4 network link, the method comprising:

5   configuring a communication system to bypass use of the checksum during

6 communications across the reliable network link;

7   receiving an outbound packet to be transmitted to a destination across the

8 reliable network link; and

9   sending the outbound packet to the destination across the reliable network

10 link without computing the checksum for the outbound packet.

1   12.   The computer-readable storage medium of claim 11, wherein

2 configuring the communication system to bypass the checksum involves

3 informing a protocol stack within the communication system that network

4 interface hardware for the communication system is capable of computing the

5 checksum, so that the protocol stack does not compute the checksum.

1   13.   The computer-readable storage medium of claim 11, wherein the

2 method further comprises:

3   determining whether the outbound packet is directed to a valid destination

4   that is eligible for checksum bypassing;

5   if the outbound packet is not directed to a valid destination,

6   computing the checksum for the outbound packet, and

7   inserting the checksum into the outbound packet.

1   14.   The computer-readable storage medium of claim 13, wherein the

2   checksum is computed by a driver associated with network interface hardware for

3   the communication system.

1   15.   The computer-readable storage medium of claim 11, wherein the

2   method further comprises:

3   receiving an inbound packet from a source across the reliable network

4   link; and

5   accepting the inbound packet without re-computing the checksum;

6   wherein re-computation of the checksum is required by the communication

7   protocol to verify that the inbound packet was received without errors.

1   16.   The computer-readable storage medium of claim 15, wherein

2   accepting the inbound packet without re-computing the checksum involves:

3   communicating a default checksum value to a protocol stack within the

4   communication system;

5   wherein the default checksum value matches the default checksum value

6   contained within a checksum field of the inbound packet;

7   whereby the protocol stack will match the default checksum value with the

8   checksum field of the inbound packet and will consequently accept the inbound

9   packet.

1   17.   The computer-readable storage medium of claim 16, wherein

2   accepting the inbound packet without re-computing the checksum additionally

3   involves inserting the default checksum value into the checksum field of the

4   inbound packet.

1   18.   The computer-readable storage medium of claim 11, wherein the

2   communication protocol includes one of:

3   Transmission Protocol (TCP);

4   Internet Protocol (IP); and

5   User Datagram Protocol (UDP).

1   19.   The computer-readable storage medium of claim 11, wherein the

2   reliable network link adheres to the InifiBand standard.

1   20.   The computer-readable storage medium of claim 12,

2   wherein the checksum is a TCP checksum; and

3   wherein the protocol stack is an IP stack.

1   21.   An apparatus that bypasses use of a protocol checksum during

2   communications across a reliable network link, comprising:

3   a configuration mechanism that selectively configures a communication

4   system to bypass use of the checksum during communications across the reliable

5   network link;

6   a receiving mechanism that is configured to receive an outbound packet to

7   be transmitted to a destination across the reliable network link; and

8   a sending mechanism that is configured to send the outbound packet to the

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9   destination across the reliable network link without computing the checksum for

10   the outbound packet.

1   22.   The apparatus of claim 21, wherein the configuration mechanism

2   informs a protocol stack within the communication system that network interface

3   hardware for the communication system is capable of computing the checksum, so

4   that the protocol stack does not compute the checksum.

1   23.   The apparatus of claim 21,

2   wherein the configuration mechanism is configured to determine whether

3   the outbound packet is directed to a valid destination that is eligible for checksum

4   bypassing; and

5   wherein if the outbound packet is not directed to a valid destination, the

6   configuration mechanism is configured to,

7   compute the checksum for the outbound packet, and to

8   insert the checksum into the outbound packet.

1   24.   The apparatus of claim 23, wherein the checksum is computed by a

2   driver associated with network interface hardware for the communication system.

1   25.   The apparatus of claim 21, wherein the receiving mechanism is

2   configured to:

3   receive an inbound packet from a source across the reliable network link;

4   and to

5   accept the inbound packet without re-computing the checksum;

6   wherein re-computation of the checksum is required by the communication

7   protocol to verify that the inbound packet was received without errors.

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1   26.   The apparatus of claim 25,

2   wherein the receiving mechanism is configured to communicate a default

3   checksum value to a protocol stack within the communication system; and

4   wherein the default checksum value matches the default checksum value

5   contained within a checksum field of the inbound packet;

6   whereby the protocol stack will match the default checksum value with the

7   checksum field of the inbound packet and will consequently accept the inbound

8   packet.

1   27.   The apparatus of claim 26, wherein the receiving mechanism is

2   additionally configured to insert the default checksum value into the checksum

3   field of the inbound packet.

1   28.   The apparatus of claim 21, wherein the communication protocol

2   includes one of:

3   Transmission Protocol (TCP);

4   Internet Protocol (IP); and

5   User Datagram Protocol (UDP).

1   29.   The apparatus of claim 21, wherein the reliable network link

2   adheres to the InifiBand standard.

1   30.   The apparatus of claim 22,

2   wherein the checksum is a TCP checksum; and

3   wherein the protocol stack is an IP stack.

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